

**Subpart G—Piping Systems****§ 182.700 General.**

Materials used in piping systems must meet the requirements of this subpart and be otherwise acceptable to the cognizant OCMI.

**§ 182.710 Piping for vital systems.**

(a) Vital systems are those systems that are vital to a vessel's survivability and safety. For the purpose of this part the following are vital systems:

- (1) Fuel system;
- (2) Fire main;
- (3) CO<sub>2</sub> and Halon systems;
- (4) Bilge system;
- (5) Steering system;
- (6) Propulsion system and its necessary auxiliaries and controls;
- (7) Ship's service and emergency electrical generation system and its necessary auxiliaries; and
- (8) A marine engineering system identified by the cognizant OCMI as being crucial to the survival of the vessel or to the protection of the personnel on board.

(b) For the purpose of this part, a system not identified in paragraph (a) of this section is a non-vital system.

(c) Piping used in a vital system must:

- (1) Be composed of ferrous materials except when:
  - (i) Nonmetallic piping materials are permitted by § 182.720; or
  - (ii) Nonferrous metallic piping materials are permitted by § 182.730; and
- (2) If subject to a pressure of more than 1,034 kPa (150 psig), be designed, fabricated, and inspected in accordance with the principles of American National Standards Institute (ANSI) B 31.1, "Code for Pressure Piping, Power Piping," or other standard specified by the Commandant.

**§ 182.715 Piping subject to more than 1,034 kPa (150 psig) in non-vital systems.**

Piping subject to more than 1,034 kPa (150 psig) in a non-vital system must be designed, fabricated, and inspected in accordance with the principles of ANSI B 31.1, or other industry standard acceptable to the Commandant.

**§ 182.720 Nonmetallic piping materials.**

(a) Rigid nonmetallic materials (plastic) may be used only in non-vital systems and in accordance with paragraphs (c) and (d) of this section.

(b) Flexible nonmetallic materials (hose) may be used in vital and non-vital systems where permitted by paragraph (e) of this section.

(c) Nonmetallic piping must not be used in gasoline or diesel fuel systems. Flexible nonmetallic materials (hose) may be used where permitted by paragraph (e) of this section.

(d) Where rigid nonmetallic material (plastic) is permitted for use in piping systems by this section, the following restrictions apply:

(1) Penetrations of required watertight decks and bulkheads by any rigid plastic pipe are prohibited unless the following requirements are met:

(i) Each penetration must be accomplished using an acceptable metallic fitting that is welded or otherwise attached to the bulkhead or deck by an accepted method; and

(ii) One or more metallic shutoff valves must be installed adjacent to the fitting in one of the following ways:

(A) Only one metallic shutoff valve must be installed if it is operable from above the bulkhead deck;

(B) If two metallic shutoff valves are installed, one on either side of the bulkhead, they need not be operable from above the bulkhead deck provided immediate access to both is possible; or

(C) Where both plastic and metallic materials are used in piping that penetrates a bulkhead, and the two materials exist entirely on opposite sides of the bulkhead, a metallic shutoff valve must be installed at the bulkhead in the metallic part of the system, with the valve being capable of operation from above the bulkhead deck, or locally if immediate access is possible;

(2) Protection from mechanical damage must be specifically considered and all protective covering or shields must be installed to the satisfaction of the cognizant OCMI;

(3) Through hull fittings and shutoff valves must be metallic. In the case of nonmetallic hulls, materials that will